THE LARVAL HABITS OF SNAKEFLIES (RAPHIDIOPTERA: RAPHIDIIDAE)

K. N. A. ALEXANDER

59 Sweetbrier Lane, Heavitree, Exeter EX1 3AQ.

Abstract

Field observations and laboratory rearing have revealed that existing data on tree associations within the British Raphidioptera are incorrect. Some valid associations are presented.

Anyone who has worked deadwood for insects will be aware that snakefly larvae are to be found in the deadwood of virtually all species of tree and shrub. They are most often found beneath loose bark on branches within the first few years following death. It is therefore surprising that Fraser (1959) linked each species so closely to one or two particular tree species: *Atlantoraphidia maculicollis* (Stephens) and *Subilla confinis* (Stephens) with pine and larch, *Phaeostigma notata* (Fabricius) with oak and *Xanthostigma xanthostigma* (Schummel) with willows. Plant (1994) has already pointed out that there seems to be no evidence to support the willow association.

Atlantoraphidia maculicollis has now been reared from pupae twice and in both cases in association with native broad-leaved trees within ancient semi-natural woodlands in Gloucestershire:

- Hailey Wood (SO90), Cirencester Park, reared from pupa in the bracket fungus *Inonotus dryadeus* on a mature ride-side oak, collected 3.xii.1989;
- Folly Wood, Dursley (ST79), reared from pupa collected from beneath loose bark on fallen dead trunk of wych elm *Ulmus glabra*, 4.iii.1984.

The species has also been encountered as an adult in the field on many occasions, and most often by beating oak branches, both of woodland trees and open-grown parkland, wood pasture and hedgerow trees. The species has been found right across south-western England – Cornwall, Devon, Dorset, Somerset, and Gloucestershire – as well as in Surrey, and so this is not just a localised feature of the species' ecology. This association with oak and other native broad-leaved tree species contrasts with Fraser's (*loc. cit.*) experience. Thus the record for *A. maculicollis* from Selborne well away from pines (Aston, 1997) is not at all surprising and does not imply a long dispersive flight.

One further rearing record supports Fraser's association of *Phaeostigma notata* with oak:

- Sherborne Park, Dorset (ST61), reared from pupa in the bracket fungus *Inonotus dryadeus* on a mature open-grown parkland oak, collected in April 1996.

My records of adult *P. notata* are from exactly the same situations as described above for *A. maculicollis*: by beating oak branches, both of woodland trees and open-grown parkland, wood pasture and hedgerow trees. Sites were in Surrey, Worcestershire, Warwickshire, Shropshire, and Montgomeryshire

Subilla confinis is a little known snakefly, and Plant (1994, 1997) identifies the need for information on the species of trees on which this species is found. As noted

above, Fraser (1959) indicates that it is confined to pine and larch, but this is not the experience in Gloucestershire. One was beaten from elder blossom underneath an ancient pear tree and another from a dead branch of an ancient plum tree in a large area of mixed orchards in Westbury-on-Severn (SO71), Gloucestershire, 25.v.2003. Snakefly larvae were also found beneath bark on the old fruit trees, although none were reared successfully – no other snakefly species was found as adult in these orchards so there is a strong suspicion that these were *Subilla* larvae. I am aware of only one previous record of this snake fly in Gloucestershire and that was from oak in the north Cotswolds, 15.vi.1998, P.F. Whitehead. Whitehead (pers. comm.) comments that he has nearly always found it on oak (also from ash) and has confirmed *Quercus robur* as the larval habitat.

In my experience the fourth British species, *X. xanthostigma* occurs in similar situations to those described for *A. maculicollis* and *P. notata*. Records are from Gloucestershire, Wiltshire, Worcestershire, Warwickshire, Norfolk, and Cumberland. Collins (2000), interestingly, reports rearing *X. xanthostigma* from spruce cones in Warwickshire.

It is clearly time to place the information about those early exclusive associations with conifers on the compost heap where they belong. All four species may be found on oak although only three have definitely been reared from deadwood of this tree species. It seems probable that all four species are capable of developing in the dead wood of a wide range of tree and shrub species.

Interestingly only one of the areas mentioned has generated more than one species of snakefly – Great Wood, Virginia Water and Alderhurst, Englefield Green are two areas close to each other in north Surrey (SU96) and both have *A. maculicollis* and *P. notata* recorded. *P. notata* adults were found in early June (6th and 8th) and *A. maculicollis* adults in late June (17th and 25th), which might indicate that the adults of the two species are not active at precisely the same time of year on any one site. All of my *P. notata* records come from a very short period of the year June 6-14 (seven records) whereas *A. maculicollis* records are from a longer period May 29-July 21 (10 records). *X. xanthostigma* are also from a longer period May 15-June 26 (nine records). The comparative phenology of these species might reward some close study.

Acknowledgement

Thanks to Paul Whitehead for permission to refer to his unpublished records.

References

Aston, A., 1997. Flying power of *Atlantoraphidia maculicollis* Stephens (Raphidioptera: Raphidiidae). *Entomologist's Rec. J. Var.* **109**: 113-4.

Collins, G.A., 2000. The snakefly *Xanthostigma xanthostigma* (Schummel, 1832) (Raphidioptera: Raphidiidae) reared. *Entomologist's Rec. J. Var.* **112**: 24.

Fraser, F.C., 1959. Mecoptera, Megaloptera and Neuroptera. *Handbooks for the Identification of British Insects* I (12 & 13). London: Royal Entomological Society.

Plant, C.W., 1994. *Provisional atlas of the lacewings and allied insects (Neuroptera, Megaloptera, Raphidioptera and Mecoptera) of Britain and Ireland*, edited for the Biological Records Centre by PT Harding, BC Eversham and HR Arnold. Huntingdon: Biological Records Centre.

Plant, C.W., 1997. A key to the adults of British lacewings and their allies. *Field Studies* **9**: 179-269.